

List of Current Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 - 8 (Cancelled).

9. (New) A sonic or ultrasonic transducer, comprising:
a disc-shaped piezoelectric unit; a ring-shaped coupling element surrounding said piezoelectric unit with a form- and force-fit;

a matching layer arranged in front of said piezoelectric unit in the direction of radiation of the sonic or ultrasonic waves; and

a transmitting/receiving unit which excites said piezoelectric unit to execute radial oscillations, wherein:

said matching layer is made of a material which has dimensional stability up to a temperature lying above the temperature at the installation location of the sonic or ultrasonic transducer; the material-specific coefficient of thermal expansion of the material of said matching layer is greater than that of the materials of said piezoelectric unit and/or said coupling element; and

the modulus of elasticity of the material of said matching layer is at least one order of magnitude smaller than that of said piezoelectric unit and/or said coupling ring element.

10. (New) The sonic or ultrasonic transducer as claimed in claim 9, wherein: said matching layer is made of a hard foam material.

11. (New) The sonic or ultrasonic transducer as claimed in claim 9, wherein: said coupling element is made of metal or ceramic.

12. (New) The sonic or ultrasonic transducer as claimed in claim 9, further comprising:

a protective foil provided in front of said matching layer in the direction of radiation of the sonic or ultrasonic waves, and is arranged such that it protects said matching layer, on the side of said matching layer facing in the direction of radiation, from the penetration of moisture and other foreign matter.

13. (New) The sonic or ultrasonic transducer as claimed in claim 12, wherein: said protective foil is made of metal.

14. (New) The sonic or ultrasonic transducer as claimed in claim 9, further comprising:

a housing provided, in which said matching layer and said piezoelectric unit with said coupling element are arranged; and

a potting compound provided, which is arranged at least in some areas between said matching layer, said piezoelectric unit, said coupling element, and the inner wall of said housing.

15. (New) The sonic or ultrasonic transducer as claimed in claim 9, wherein: said potting compound is an elastomeric potting compound.

16. (New) The sonic or ultrasonic transducer as claimed in claim 15, further comprising:

a diffusion barrier provided, which is arranged on said potting compound facing away from the direction of radiation.